Year 6 fractions, decimals and percentages
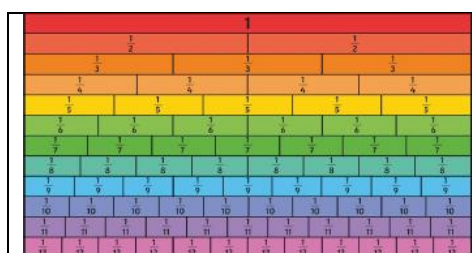
Prior Knowledge
Add and subtract fractions with the same denominator (Y3&4)
Recognise and write decimal equivalents of any number of tenths or hundredths (Y4)
Recognise and write decimal equivalents to ¼; ½; ¾ (Y4)
Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths (Y4)
Round decimals with 1 decimal place to the nearest whole number (Y4)
Compare and order fractions whose denominators are all multiples of the same number (Y3-5)
Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths (Y4-5)
Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (Y5)
Add and subtract fractions with the same denominator and denominators that are multiples of the same number (Y5)
Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams (Y5)
Read and write decimal numbers as fractions (Y5)
Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (Y5)
Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place (Y5)
Read, write, order and compare numbers with up to 3 decimal places (Y4-5)
Solve problems involving number up to 3 decimal places (Y5)
Recognise the per cent symbol (%) and understand that per cent relates to "number of parts per 100", and write percentages as a fraction with denominator 100, and as a decimal fraction (Y5)
Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and fractions with a denominator of a multiple of 10 or 25 (Y5)

fractions, decimals and percentages	Working Towards	Within	Expected	Above
Use common factors to simplify fractions; use common multiples to express fractions in the same denomination				
Compare and order fractions, including fractions >1				
Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions				
Multiply simple pairs of proper fractions, writing the answer in its simplest form				
Divide proper fractions by whole numbers				
Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction				
Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers are up to three decimal places				
Multiply one-digit numbers with up to 2 decimal places by whole numbers				
Use written division methods in cases where the answer has up to 2 decimal places				
Solve problems which require answers to be rounded to specified degrees of accuracy				
Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts				

Highlights: _____

_____

Resources

Glossary

vocabulary	word class	definition
whole	noun	a thing that is complete
fraction	noun	a numerical quantity that is not a whole number (e.g. 1/2, 0.5)
half	noun	either of two equal or corresponding parts into which something is or can be divided
equal	adjective	being the same in quantity, size, degree, or value
quarter	noun	each of four equal or corresponding parts into which something is or can be divided
third	number	each of three equal parts into which something is or may be divided
tenth	number	each of ten equal parts into which something is or may be divided
unit fraction		A unit fraction is any fraction with 1 as its numerator (top number), and a whole number for the denominator (bottom number)
non-unit fraction		A non-unit fraction is a fraction with a numerator (top number) greater than 1. They could be proper fractions (less than 1 whole, where the denominator (bottom number) is larger than the numerator) or improper fractions
denominator	noun	the number below the line in a vulgar fraction; a divisor
numerator	noun	the number above the line in a vulgar fraction showing how many of the parts indicated by the denominator are taken, for example, 2 in 2/3
hundredth		each of one hundred equal parts into which something is or may be divided
equivalent	adjective	equal in value
decimal	adjective	relating to or denoting a system of numbers and arithmetic based on the number ten, tenth parts, and powers of ten
decimal	adjective	a fraction whose denominator is a power of ten and whose numerator is expressed by figures placed to the right of a decimal point
mixed number	noun	a number consisting of an integer and a proper fraction
integer	noun	a number which is not a fraction; a whole number
improper fraction	noun	a fraction in which the numerator is greater than the denominator, such as 5/4
thousandth		one of a thousand equal parts of something
per cent	noun	one part in every hundred
proper fraction	*noun*	*a fraction that is less than one, with the numerator less than the denominator*
decimal fraction	*noun*	*a fraction whose denominator is a power of ten and whose numerator is expressed by figures placed to the right of a decimal point*
simplify		*the process of reducing the numerator and denominator to their smallest whole numbers so the fraction is in its simplest form*

Future Learning

Key Stage 3
- Consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots   - Select and use appropriate calculation strategies to solve increasingly complex problems   - Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8)   - Define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100%   - Interpret fractions and percentages as operators   - Use standard units of mass, length, time, money and other measures, including with decimal quantities   - Round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures]

Key Stage 4

- Consolidate their numerical and mathematical capability from key stage 3 and extend their understanding of the number system to include powers, roots {**and fractional indices**}
- **Change recurring decimals into their corresponding fractions and vice versa**
- Identify and work with fractions in ratio problems
- Calculate with roots, and with integer {**and fractional**} indices
- Calculate exactly with fractions, {**surds**} and multiples of π; {**simplify surd expressions involving squares [for example] and rationalise denominators**} **12 4 3 4 3 2 3** = × = × = ×